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THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

TOWN OF GRAVENHURST

DISTRICT OF MUSKOKA

1964

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TOWN OF GRAVENHURST - 1964
DISTRICT OF MUSKOKA

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Report on water pollution
survey, town of Gravenhurst,
district of Muskoka.

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REPORT ON

WATER POLLUTION SURVEY

TOWN OF GRAVENHURST

DISTRICT OF MUSKOKA

JULY 1964

THE DIVISION OF SANITARY ENGINEERING

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INTRODUCTION

A water pollution survey of the Town of Gravenhurst was effected on July 15, 1964. The purpose of the survey was to locate and record all significant sources of pollution. When sources of pollution are found, recommendations are made regarding the remedial action required to correct the problem. It is the responsibility of the Ontario Water Resources Commission to assure that effective water pollution measures are taken by communities, individuals and others where impairment of the water quality exists.

These surveys are conducted routinely and upon request.

GENERAL INFORMATION

The Town of Gravenhurst, with a population of 3,202 is located at the junction of Highways #69 and #11B approximately 24 miles north of Orillia. The town is situated at the south end of Muskoka Bay and between Muskoka Bay and Gull Lake.

WATER SUPPLY

Water for this municipality is obtained from two ground water supplies and from Gull Lake. Calgon treatment for iron control is effected at the well supplies. Chlorination for disinfection purposes is practiced only at the Gull Lake supply.

The two wells are placed into operation during the summer months to provide a water at a lower temperature. The entire water supply is obtained from Gull Lake during the winter.

The quality and quantity of the water from this water works appear to be adequate.

SEWAGE TREATMENT PLANT

Raw sewage from the Town of Gravenhurst is passed through bar screens and grit channels prior to receiving primary settling treatment. Following this the primary effluent is mixed with recirculated final effluent and applied to a high rate trickling filter and final settling tank for secondary treatment. Chlorination of the final effluent is effected prior to its discharge to a small creek which flows to Lake Muskoka. Raw sludge is removed daily for land disposal.

Comments

The laboratory results of samples collected for chemical analyses on May 8, 1964, the time of the most recent OWRC inspection, indicated that the treatment efficiency of this plant was unsatisfactory.

The average BOD and suspended solids contents of six grab samples were 57 ppm and 41 ppm respectively. These values are in excess of the Commission's maximum objective of not greater than 15 ppm for each.

The Commission recommends that a BOD and suspended solids content of a discharge to a watercourse be not greater than 15 ppm for both values. It is noted that the most recent samples collected by the municipality were composited over a six hour period and therefore are a good representation of the treatment efficiency. It was shown that the treatment provided was not adequate to produce an effluent of satisfactory quality.

The laboratory results of samples collected from the final effluent are listed on appendix "A" of this report.

DRAINAGE

Drainage is provided by means of open ditches and storm sewers. The outfalls were located and examined and no dry-weather flows were observed. The locations of the pertinent outfalls are shown on the map of the Town of Gravenhurst that is enclosed in the map holder attached to the back cover of this report.

OWRC WATER QUALITY OBJECTIVES

The following objectives are for all waters in the Province of Ontario:

<u>ITEM</u>	<u>CONCENTRATION</u>
5-Day BOD	not greater than 4 ppm
M.F. Coliform Count	not greater than 2,400 coliforms/100 ml
Phenol - Average	not greater than 2 ppb
- Maximum	5 ppb
pH	6.7 - 8.5

Adequate protection for these waters, except in certain specific instances influenced by local conditions, should be provided if the following waste discharge concentrations are obtained:

<u>ITEM</u>	<u>CONCENTRATION</u>
5-Day BOD	not greater than 15 ppm
Suspended Solids	not greater than 15 ppm
Phenol	not greater than 20 ppb
pH	5.5 - 10.6
Iron	not greater than 17 ppm
Oil	not greater than 15 ppm

DISCUSSION OF LABORATORY RESULTS

Samples were collected from Gull Lake and Muskoka Bay in the vicinity of Gravenhurst for bacteriological examination. The laboratory results are listed in appendix "B" of this report.

The bacterial examination indicated that none of the samples collected from Muskoka Bay and Gull Lake at the time of this inspection exceeded the Commission's maximum objective of not greater than 2400 coliforms per 100 ml. It is noted, however, that samples collected from Muskoka Bay in the Gravenhurst area at the time of the Muskoka Lakes survey in 1963 showed that two

samples contained coliform organisms in excess of the maximum objective of the OWRC. The high coliform counts were attributed to the fact that the final effluent from the Gravenhurst sewage treatment plant was being discharged to a tributary of Muskoka Lake without receiving chlorination. However, chlorination of the final effluent is now being carried out.

It should be pointed out that the water from these lakes or any other surface water supply should receive the minimum treatment of chlorination if used for human consumption.

BRIARS DAIRY LIMITED

This dairy disposes of the milk wastes by means of the ridge and furrow irrigation method and a pond. The wastes are discharged to a tilled field and any effluent flows to a pond located at the termination of this field. During the summer months the dairy production is increased approximately six times. At the time of this inspection, Briars Dairy Limited, was at peak production. The waste disposal area was examined and there was no ponding of wastes other than in the pond where the liquid depth was approximately one foot. There was no waste being discharged from this dairy to a watercourse. It was reported that the waste disposal area had operated more effectively since the cooling water had been separated from the milk wastes.

Comments

At the time of this inspection there were no water pollution problems associated with this industry.

WALKERS SNACK BAR AND WALKERS MARINA

Disposal of sewage from this snack bar and marina is achieved by means of a septic tank and subsurface tile field. Reportedly sewage is pumped from the septic tank to the tile field.

REFUSE DISPOSAL

The Town of Gravenhurst operated a burn and cover type of refuse disposal area. There appears to be no pollution problem of surface waters from the operation of this dump.

CONCLUSIONS

A water pollution control programme should be foremost in the planning for the Town of Gravenhurst. Geography and soil conditions make the installation of private systems difficult and in some instances adequate disposal could not be achieved. It is noted that where an adequate cover of soil is available it is usually sand which is ideal for septic tank and tile field systems. In most instances there is very little earth cover and an abundance of rock which makes some areas unsuitable for this type of system.

Approximately 60 per cent of the municipality is serviced by sanitary sewers. Preferable to private septic tank and tile field systems would be the installation of sanitary sewers to service the whole town of Gravenhurst. However, in addition to further extensions of the sewer system, improvements to the sewage treatment plant are necessary so that adequate treatment efficiency can be achieved.

SUMMARY

A water pollution survey of the Town of Gravenhurst was effected on July 15, 1964. Outfalls were located and recorded on a map which is appended to this report. The treatment efficiency of the sewage treatment plant is not satisfactory. Consideration should be given to improving the efficiency of this plant. The bacteriological examinations of samples collected from Gull Lake and Muskoka Bay showed that none of these samples exceeded the Commission's maximum


objective of not greater than 2400 coliforms per 100 ml. Briars Dairy Limited has obtained a satisfactory method of disposal.

RECOMMENDATION

It is recommended that consideration be given to improving the treatment efficiency of the Gravenhurst sewage treatment plant.

All of which is respectfully submitted.

District Engineer



H. Browne, P. Eng.

Approved by

bw

K.H. Sharpe, Director.

Prepared by:

D.A. Murray Wilson

All analyses except
pH reported in ppm
unless otherwise
indicated

APPENDIX "A"

ONTARIO WATER RESOURCES COMMISSION

LABORATORIES

<u>Sampling Point No.</u>	<u>Location & Description</u>	<u>Date Examined or sampled</u>	<u>5-Day BOD</u>	<u>SOLIDS</u>			<u>Turb- idity</u>	<u>M.F.Coliform Count per 100 ml</u>
				<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>		
GR-1	Gravenhurst S.T.P. Final Effluent	May 8/64	76	276	62	214		400
		Apr. 6/64	50		48		6 HR.Composite	
		Mar. 30/64	46		48		4 HR.Composite	
		Mar. 17/64	47		28			
		Feb. 17/64	78		52			
		Jan. 13/64	42		27			
		Dec. 5/63	60	224	46	178		
		Oct. 25/63	36	394	29	365		150,000
GR-2 W	42" Diam. Concrete outfall at David & John Sts.	July 15/64		No Dry-Weather Flow Noted				
	30" Diam. Concrete outfall at David St. and Muskoka Road.	July 15/64		No Dry-Weather Flow Noted				
GR-3A W	36" Diam. Concrete outfall at David St. & Muskoka Road	July 15/64		No Dry-Weather Flow Noted				

Appendix "A" (Cont'd).

<u>Sampling Point No.</u>	<u>Location & Description</u>	<u>Date Examined or sampled</u>	<u>5-Day BOD</u>	<u>SOLIDS</u> <u>Total</u> <u>Susp.</u> <u>Diss.</u>	<u>Turb- idity</u>	<u>M.F.Coliform Count per 100 ml</u>
GR-4W	12" Diam. Concrete out- fall at Pine- land Road and Gull Lake	July 15/64		No Dry-Weather Flow Noted		
GR-5W	12" Diam. Concrete out- fall at Hwy.#11, south of Church St. N.	July 15/64		No Dry-Weather Flow Noted		
GR-6W	12" Diam. Concrete out- fall at Church St. N. & W. Side of the Railway Tracks	July 15/64		No Dry-Weather Flow Noted		
GR-7W	12" Diam. Concrete out- fall S. of Victoria St. on the east side of 2nd.St.	July 15/64		No Dry-Weather Flow Noted		

All analyses except
pH reported in ppm
unless otherwise
indicated

APPENDIX "B"

ONTARIO WATER RESOURCES COMMISSION

LABORATORIES

<u>Sampling Point No.</u>	<u>Location & Description</u>	<u>Date Examined or sampled</u>	<u>5-Day BOD</u>	<u>SOLIDS</u>			<u>Turb- idity</u>	<u>M.F. Coliform Count per 100 ml</u>
G-1	Gull Lake	July 15/64						146
G-2								8
G-3								6
G-4								44
G-5								18
G-6								8
G-7								300
G-8								28
G-9								56
G-10								8
MU-1	Muskoka Bay	July 14						48
MU-1A								36
MU-1B								38
MU-1C								16
MU-1D								44